STATEMENT OF CONSIDERATION
Relating to 401 KAR 10:031
Amended After Comments

I. The public hearing on 401 KAR 10:001, 10:029, 10:030 and 10:031, scheduled for September 27, 2012, at 5 p.m. at 300 Fair Oaks Lane, Conference Room 301D, Frankfort, Kentucky, was held; several members of the public did attend this public hearing, including Mr. Hank Graddy (Sierra Club), Mindy Scott, (Northern Kentucky Sanitation District #1), Chad Harpole (Kentucky Chamber of Commerce), Lloyd Cress (Kentucky Coal Association), Larinda Tervelt and Annie Godfrey (U.S. EPA Region 4). Mr. Hank Graddy, (Cumberland Chapter of the Sierra Club), provided verbal comments. Written comments were also received regarding these administrative regulations.

II. The following people submitted written comments regarding this administrative regulation:

Name and Title	Agency/Organization/Entity, Other
Tom FitzGerald	Director, Kentucky Resources Council
Mr. Hank Graddy	W.H. Graddy &Assoc. Cumberland Chapter, Sierra Club
David E. Rager	Executive Director, No. Kentucky Sanitation District #1
C. Gregory Higdon	President and CEO, GEI Consultants
Robert Gensemer, PhD	GEI Consultants
James D. Chaney	Chief Gov't. Affairs Officer, Kentucky League of Cities
Donald S. Dott	Director, Kentucky State Nature Preserves Commission
Gay Dwyer	Senior VP, Gov't Affairs, Kentucky Retail Federation
Eric Van Genderan et al.	Windward Environmental, LLC
Laura Knoth	Kentucky Corn Growers Association
Tim Joice	Water Policy Director, Kentucky Waterways Alliance
Larinda Tervelt	U.S. EPA Region 4
Lloyd R. Cress	Senior Policy Adviser, Kentucky Coal Association
C. Gregory Higdon	Kentucky Association of Manufacturers
Chad Harpole	Director, Public Affairs, Kentucky Chamber of Commerce

III. The following people from the promulgating administrative body responded to the written comments:

Name and Title
Peter Goodmann, Assistant Director
Randall Payne, Environmental Scientist III

IV. Summary of Comments and Responses

401 KAR 10:031

(1) Subject Matter: Proposed nutrient criterion and eutrophication definition
(a) Commenter(s): USEPA, Region IV

Comment: EPA states that the amended narrative criterion along with the supporting amended eutrophication definition clarify the protection of the designated use. However, USEPA emphasizes the development and incorporation into water quality standards of numeric nutrient criteria. Numeric nutrient development plans should be updated.

(b) Response: The cabinet acknowledges EPA's comments with regard to clarification of the narrative nutrient standard. The cabinet also acknowledges EPA's request for an updated numeric nutrient criteria development plan and eventual incorporation of numeric nutrient criteria into water quality standards, though numeric nutrient development plans are not included in the proposed changes to 401 KAR 10:001 & 10:031, but are provided by the cabinet to EPA as part of its Clean Water Act §106 grant funding. The cabinet continues to work on developing scientifically defensible numeric nutrient criteria and believes it should continue with its approach to this complex criteria development effort. The cabinet is also developing a nutrient reduction strategy. This strategy is intended as a framework for improved nutrient management, collaborating with other agencies and stakeholders to determine where to invest the most appropriate and effective resources to reducing nutrient loadings to Kentucky's waterbodies. While the cabinet has a number of regulatory tools at its disposal, the cabinet's resources can best be employed by working with agencies and stakeholders to cooperating in our scientific efforts and understanding, focusing appropriate regulatory tools in areas where they can be most effective, coordinating and building upon existing educational, technical and financial assistance programs, using existing tools and available resources, and taking innovative approaches to improved nutrient management. This strategy is being built upon the principal of engaging all sectors and interested parties in order to achieve effective and sustained progress in the reduction of nutrient loading.

(2) Subject Matter: Opposes the proposed definition of eutrophication and the nutrient criterion

(a) Commenter(s): Hank Graddy, W.H. Graddy & Associates, Sierra Club; Tom Fitzgerald, Kentucky Resources Council; and Tim Joice, Kentucky Waterways Alliance

Comment: The commenters state that the proposed amendment to the nutrient criterion removes the anticipatory aspect of the standard in favor of a reactionary standard. It is noted that proposed eutrophication definition results in the nutrient criterion being reactionary and does not recognize that eutrophication is a process. Definitions on the USGS webpage offers language on the process of

eutrophication. One commenter, Tim Joice, offers both a nutrient criterion and definition of eutrophication for the DOW to consider.

(b) Response: The cabinet's intent in proposing to amend the nutrient criterion, including amending the definition for "eutrophication" is to clarify the cabinet's approach to protection of the designated use from anthropogenically enhanced eutrophication. The cabinet has determined that the alternate language suggested by the commenters, while legitimately defining the eutrophication process, does not outline the factors the cabinet considers in determining whether a waterbody is impaired by anthropogenic eutrophication. For example, these suggestions included language requiring sustained low dissolved oxygen levels exist for four consecutive quarters, along with diurnal increase of pH in the waterbody, which is not protective of the designated use and in fact indicates nonsupport of the designated use. Also, the proposed definition states what "signals" exist that indicate eutrophication and are relatively easy to measure. The "definition" is not the trigger for impairment due nutrient enrichment; rather the criterion is the trigger for determining impairment. Commenters also cite the "free-from" standards in 401 KAR 10:031 Section 2 and suggest that the definition would trump those general standards. The cabinet believes that the definition of eutrophication and the nutrient standard will work to protect the waterbodies from not meeting "free-from" with regards to manifestations resulting from nutrient-induced eutrophication. Commenters also have concerns that "nuisance" blooms, "proliferation" of nuisance plants and "severe, sudden" episodes of nutrient enrichment are vague and open to interpretation. "Nuisance" is a specific term regarding cultural eutrophic conditions related to aquatic plants and animals. The cabinet proposes to include "sudden, severe enrichment" recognizing an acute occurrence where a spill or release of nutrients may occur is addressed in the water quality standards. However, the cabinet has proposed to further amend the narrative nutrient standard in 401 KAR 10:031 Section 1 to "ensure that nutrients shall not be elevated in a surface water to a level that results in a eutrophication problem," underscoring the cabinet's intent that this criterion be protective.

(3) Subject Matter: Asks the DOW promulgate numeric nutrient criteria for total phosphorus and total nitrogen for those regions of Kentucky where studies are complete.

(a) Commenter(s): Hank Graddy, W.H. Graddy & Associates, Sierra Club

Comment: The Sierra Club would like to know when the DOW will promulgate numeric nutrient criteria in areas he understands is possible.

(b) Response: The cabinet is updating its numeric nutrient criteria development plan toward eventual incorporation of numeric nutrient criteria into water quality standards, though numeric nutrient development plans are not included in the proposed changes to 401 KAR 10:001 & 10:031, but are provided by the cabinet to EPA as part of its Clean Water Act §106 grant funding. The cabinet has not yet determined when it will have completed numeric nutrient criteria and implementation procedures that are ready to promulgate. The cabinet continues to work on developing scientifically defensible numeric nutrient criteria and believes it should continue with its approach to this complex criteria development effort. The agency is discussing this issue both internally and with EPA. While data collection in some areas is considered complete, data analyses are ongoing. To date, some of the data results remain inconclusive regarding numeric thresholds linked to nutrient-induced response of the biological community. The cause-response analysis is the preferred path the cabinet is pursuing with its studies to set numeric criteria thresholds to protect aquatic habitat designated uses.

(4) Subject Matter: Requests the DOW develop a statewide nutrient reduction strategy as described in the ORSANCO 2011 Annual Report, page 12

(a) Commenter(s): Hank Graddy, W.H. Graddy & Associates, Sierra Club

Comment: The Sierra Club requests that DOW develop statewide reduction strategy as described in the ORSANCO 2011 Annual Report, page 12.

(b) Response: The cabinet acknowledges the commenter's request to develop a statewide nutrient reduction strategy. While a nutrient reduction strategy is not addressed in the proposed amendments to these regulations, the cabinet acknowledges that it is in the process of developing a statewide nutrient reduction strategy.

(5) Subject Matter: Narrative nutrient criterion as related to permit limits

(a) Commenter(s): Mr. Tim Joice, Kentucky Waterways Alliance

Comment: The Kentucky Waterways Alliance suggests that the narrative nutrient criterion should be modified to allow sufficient nutrient limits on permits to prevent waters reaching the eutrophic condition.

(b) Response: The cabinet's intent in proposing to amend the nutrient criterion, including amending the definition for "eutrophication" is to clarify the cabinet's approach to protection of the designated use from anthropogenically enhanced eutrophication. Discharge permit limits relating to nutrients may be imposed by the cabinet using the best professional judgment determination authorized in 401 KAR 5:080 Section 2 for discharges to receiving waters to protect these waters from eutrophication.

(6) Subject Matter: Proposed eutrophication definition and nutrient criterion
(a) Commenter(s): Gay Dwyer, Kentucky Retail Federation
Comment: The Kentucky Retail Federation maintains that the proposed eutrophication definition, along with related changes in Chapter 10, effectively set numeric standards for nitrogen and phosphorus in Kentucky, particularly the proposed nutrient narrative criterion. If this regulatory package in fact set numeric nutrient standards and how were they derived? If numeric nutrient standards are not being proposed how do these changes impact development and use of the narrative standards current in place?
(b) Response: The cabinet is not proposing numeric nutrient criteria in the proposed amendments to 401 KAR 10:001 or 401 KAR 10:031. The cabinet's intent in proposing to amend the nutrient criterion, including amending the definition for "eutrophication" is to clarify the cabinet's approach to protection of the designated use from anthropogenically enhanced eutrophication using a narrative criterion.

(7) Subject Matter: Stringency of the proposed eutrophication definition and narrative nutrient criterion
(a) Commenter(s): Mr. Chad Harpole, Kentucky Chamber of Commerce; Ms. Laura M. Knoth, Kentucky Corn Growers and Kentucky Small Grain Growers; and James D. Chaney, Kentucky League of Cities
Comment: The commenters ask whether the proposed eutrophication definition and narrative nutrient criterion increase the stringency of the existing standard? Will the proposed criterion and definition result in all waters with algae blooms be considered impaired and 303(d) listed?
(b) Response: The cabinet is not proposing to amend the regulations to change how it interprets the narrative nutrient criterion, but rather, the cabinet's intent in proposing to amend the nutrient criterion, including amending the definition for "eutrophication" is to clarify the cabinet's approach to protection of the designated use from anthropogenically enhanced eutrophication. The definition is outlines the criteria by which the cabinet considers whether a waterbody is meeting its designated use; unless an algal bloom is resulting in adverse effects on water chemistry and the indigenous aquatic community the cabinet would not consider the waterbody to be impaired and would not list the waterbody on the 303(d) list of impaired waters because of the algal bloom.

(8) Subject Matter: Nutrient criterion and eutrophication definition as it relates to the concept of "problem"
(a) Commenter(s): Mr. Chad Harpole, Kentucky Chamber of Commerce

Comment: The Kentucky Chamber of Commerce offers revisions to the proposed criterion and definition tied to the concept of "problem."

(b) Response: The cabinet acknowledges the commenter's concern that the nutrient criterion must be applied so as to preclude problems and concurs that the nutrient criterion should include language that precludes elevation of nutrients such that the nutrients result in a problematic eutrophic condition. Therefore the cabinet has proposed to further amend the Nutrient Criterion in 401 KAR 10:031 Section 1 to ensure that "nutrients shall not be elevated in a surface water to a level that results in a eutrophication problem."

(9) Subject Matter: Proposed nutrient criterion amendment

(a) Commenter(s): C. Gregory Higdon, Kentucky Association of Manufacturers

Comment: The Kentucky Association of Manufacturers notes that the loss of the concept of "problem" will result in triggering nutrient limits without a "eutrophication problem" having occurred. It is requested that "problem" be inserted in the revised nutrient criterion.

(b) Response: The cabinet acknowledges the commenter's concern that the nutrient criterion must be applied so as to preclude problems and concurs that the nutrient criterion should include language that precludes elevation of nutrients such that the nutrients result in a problematic eutrophic condition. Therefore the cabinet has proposed to further amend the Nutrient Criterion in 401 KAR 10:031 Section 1 to ensure that "nutrients shall not be elevated in a surface water to a level that results in a eutrophication problem."

(10) Subject Matter: Protection of surface water resources from potential selenium-caused impairment

(a) Commenter(s): U.S. EPA

Comment: The EPA comments that the removal of the acute selenium criterion from standards has the likely consequences of causing impairment to the aquatic habitat where those waterbodies are receiving permitted discharges, particularly from coal mines.

(b) Response: Of all readily accessible statewide in-stream data there are two samples out of 321 records from the Cumulative Hydrologic Impact Assessment (CHIA) database (of watersheds where coal mining is present), and 2029 samples over the past five years in the primary ambient network (of 72 stations) that exceeded the chronic criterion for selenium. In a US Army Corps of Engineers reservoir watershed with considerable coal mining, 14 samples out of 159 samples (14 monitoring stations) exceeded the chronic criterion for selenium. Of the 14 samples that exceeded the chronic criterion for selenium all of the results were 10 µg/L or less; none of the samples exceeded the acute criterion for selenium of 20 µg/L. Because the cabinet proposes to retain the chronic criterion for

selenium receiving waters will be protected from the potential toxic effects of selenium. The cabinet is aware of several other states where there is no acute water quality standard for selenium due to the same reasons noted elsewhere in this Statement of Consideration. In the fall of 2012, ORSANCO finalized revisions to its water quality regulations where the acute water quality standard (20 ug/l) was deleted from the ORSANCO standards. The table below illustrates the aquatic life criteria for Region 4 and surrounding states. Five of these states do not have an acute criterion for selenium in their water quality standards.

Aquatic Life Criteria (ug/L) for Selenium in Region 4 and surrounding states

State	Acute	Chronic
Kentucky	20	5.0
Alabama	20	5.0
Florida	--	5.0
Georgia	--	5.0
Mississippi	11.8	5.0
North Carolina	--	5.0
South Carolina	*see narrative	5.0
Tennessee	20	5.0
Virginia	20	5.0
West Virginia	20	5.0
Ohio	--	5.0**
Indiana	130	35
Illinois	1000	--
Missouri	--	5.0

*The CMC = 1/[(f1/CMC1) + (f2/CMC2)] where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 Fg /l and 12.82 Fg /l, respectively. This value was announced (61FR58444-58449, November 14, 1996) as a proposed GLI 303 I aquatic life criterion. This water quality criterion for selenium is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor (0.996 - CMC or 0.922 - CCC) that was used in the GLI to convert this to a value that is expressed in terms of dissolved metal.

**Or a site-specific number if a translator exists. Also note that this number is 50 ug/L for agricultural-use protection.

(11) Subject Matter: The court's action revoking the 1995 promulgated acute criterion for selenium

(a) Commenter(s): U.S. EPA
Comment: EPA asserts that the Kentucky Division of Water did not with complete accuracy interpret the courts action on why the acute criterion for selenium was vacated.
(b) Response: The cabinet is aware that, in *American Iron and Steel Institute* v. *EPA*, 115 F. 3d 979 (D.C. Cir.1997) EPA's selenium acute aquatic life criterion, promulgated in March 1995 under the Great Lakes Initiative, was challenged. In that case the U.S. Court of Appeals for the District of Columbia Circuit issued an order on September 19, 1996 granting EPA's motion to vacate its selenium regulations, as "seriously deficient." (*American Iron and Steel Institute* v. *EPA*, D.C. Cir. No. 95-1348 and consolidated cases). Subsequently, EPA re-examined the criterion and took a completely new approach to deriving an acute criterion for selenium. The remand resulted in U.S. EPA promulgating a new recommended national water quality acute criterion for selenium that uses a formula that accounts for the differing toxicities of the fractions of selenite and selenate to aquatic life, and also accounts for the additivity of speciation of selenium.

(12) Subject Matter: Current acute selenium criterion
(a) Commenter(s): U.S. EPA
Comment: EPA notes that the 1996 acute criterion that incorporates the relative proportions of selenite and selenate is the current national recommended criterion.
(b) Response: The cabinet has reviewed this recommended EPA acute criterion for selenium and will continue to evaluate the appropriateness of this approach. However, EPA is, itself, re-evaluating that criteria at this time; therefore, the cabinet has determined that it is appropriate to wait on the forthcoming final version of the National Recommended Water Quality Criteria before considering adoption of an alternate acute selenium criterion.

(13) Subject Matter: Three options regarding the selenium criterion for water quality standards
(a) Commenter(s): U.S. EPA
Comment: EPA suggests that Kentucky has three options going forward regarding acute selenium criterion for its water quality standards are several:
1. Leave the state's current criterion in place and wait for EPA to release new criteria guidance
2. Adopt the acute criterion from the current national recommended guidance
3. Provide a criterion based on other scientifically defensible information.

(b) Response: See response to (12) above. In addition, the cabinet offers the following options.

Option 1. Leave the state's current criterion in place and wait for EPA to release new criteria guidance: The cabinet's current selenium criteria are based on final EPA guidance published in 1987 ("Ambient Water Quality Criteria for Selenium – 1987") and are the criteria published by the U.S. EPA in their proposed rule of November 19, 1991. (See the cabinet's Statement of Consideration Relating to 401 KAR 5:031, following public hearing on November 21, 1992). Those criteria and their derivation methodology are seriously called into question by the challenge to EPA's new aquatic life selenium acute criterion promulgated in 1995, in *American Iron and Steel Institute* v. *EPA*, 115 F. 3d 979 (D.C. Cir.1997). In that case, EPA's promulgated single acute criterion for selenium was challenged on the basis that it failed to account for the different oxidation states of selenium, which have different toxicities. The U.S. Court of Appeals for the District of Columbia Circuit issued an order on September 19, 1996 granting EPA's motion in that case to vacate its selenium regulations, as "seriously deficient." The cabinet's current selenium acute criterion does not take into account different oxidation states of selenium or account for the toxic additivity of selenium. Since the cabinet proposes to retain the chronic criterion for selenium, receiving waters will be protected from the potential toxic effects of selenium if the acute criterion for selenium is withdrawn.

Option 2. Adopt the acute criterion from the current national recommended guidance: EPA continues to gather information and data in an effort to promulgate a scientifically defensible acute selenium criterion. EPA plans to issue a new selenium acute criterion soon, therefore, at this time, the cabinet has determined that it is appropriate to wait on the forthcoming final version of the National Recommended Water Quality Criteria before considering adoption of an alternate acute Selenium criterion.

Option 3. Provide a criterion based on other scientifically defensible information.

EPA is currently reviewing all available data and will soon propose a new criterion. The cabinet believes it is a better use of its resources to await EPA action and review EPA's conclusions and recommendations, therefore, at this time, the cabinet has determined that it is appropriate to wait on the forthcoming final version of the National Recommended Water Quality Criteria before considering adoption of an alternate acute Selenium criterion

(14) Subject Matter: Selenium acute criterion

(a) Commenter(s): U.S. EPA

Comment: EPA asks how the elimination of the acute selenium criterion, and failure to implement the calculation recommended by EPA for determining an acute selenium criterion achieves the intent of the CWA Section 303(c)(2)(B).

(b) Response: The cabinet has determined that the selenium chronic criterion of 5.0 µg/L will protect the designated use of warm water aquatic habitat, and will continue to implement the chronic criterion for selenium, which is, in fact, more stringent than the 20 ug/L acute standard.

(15) Subject Matter: Selenium criterion

(a) Commenter(s): Mr. C. Gregory Higdon, Kentucky Association of Manufacturers
Mr. Lloyd R. Cress, Kentucky Coal Association
Mr. Chad Harpole, Kentucky Chamber of Commerce

Comment: KAM, KCA, and the Kentucky Chamber of Commerce support the cabinet's proposed removal of the 20 µg/L acute selenium criterion.

(b) Response: The cabinet acknowledges the comment.

(16) Subject Matter: Selenium criterion

(a) Commenter(s): Mr. C. Gregory Higdon, Kentucky Association of Manufacturers
Mr. Lloyd R. Cress, Kentucky Coal Association
Mr. Chad Harpole, Kentucky Chamber of Commerce

Comment: KAM, KCA, and the Kentucky Chamber of Commerce request that the cabinet remove the chronic criterion for selenium based on questionable methods used in the development of the national criteria recommendation.

(b) Response: The cabinet has reviewed the chronic selenium criterion and its options available under which to implement this chronic selenium criterion and believes it is appropriate to retain the current chronic criterion at this time until an alternative approach can be developed.

(17) Subject Matter: Selenium criteria

(a) Commenter(s): Mr. Lloyd R. Cress, Kentucky Coal Association

Comment: The Kentucky Coal Association suggests that since the issuance of the 1987 selenium criteria, new evidence establishes the lack of scientific credibility for both the existing acute and chronic criteria, and that in 2004 EPA proposed a fish tissue-based criterion to replace previously recommended national criteria using what EPA described as better science.

(b) Response: The cabinet acknowledges that a fish tissue-based criterion for selenium is an alternate approach. However, the cabinet believes retention of the chronic criterion is appropriate at this time until an alternative approach can be developed.

(18) Subject Matter: Bioaccumulative chemicals

(a) Commenter(s): U.S. EPA

Comment: EPA asks why does the cabinet not include selenium in the list of bioaccumulative chemicals in KAR 10:029 Section 4.2.b?

(b) Response: A bioaccumulative chemical of concern is one that accumulates in one or more aquatic organism by a human health bioaccumulation factor of greater than 1000. Selenium does not accumulate by a human health bioaccumulation factor greater than 1000 (Federal Register: November 13, 2000,Volume 65, Number 219: http://www.epa.gov/fedrgstr/EPA-WATER/2000/November/Day-13/w28709.htm). In addition, EPA does not include selenium among the 22 bioaccumulative chemicals of concern affected by the ban on mixing zone in the Great Lakes (see http://www.epa.gov/gliclearinghouse/bioaccum_chem.htm) which supports the cabinet's determination not to so list selenium. Therefore, Kentucky does not include selenium on the list of bioaccumulative chemicals of concern.

(19) Subject Matter: Primary Contact Recreation

(a) Commenter(s): U.S. EPA

Comment: EPA notes that Kentucky has both a fecal coliform and *E. coli* criteria and recommends Kentucky use the *E. coli* criterion as it better correlates to gastrointestinal problems than fecal coliform.

(b) Response: The cabinet acknowledges that *E. coli* is the better indicator of gastrointestinal illness-causing pathogens and adopted that indicator in the 2003 triennial review. The cabinet employs *E. coli* when implementing permits where limits to protect primary contact recreation are required. The cabinet also currently utilizes *E. coli* for all of its water-quality monitoring programs. However, the cabinet has retained fecal coliform in water quality standards because some activities such as studies funded by CWA Section 309 grants and TMDL monitoring and development had just gotten underway using fecal coliform during the time between adoption of those regulations that included *E. coli* and USEPA approval of those regulations. The cabinet anticipates removing fecal coliform as an indicator from its water quality standards in the next triennial review when all legacy monitoring that is using fecal coliform is complete.

(20) Subject Matter: Primary Contact Recreation

(a) Commenter(s): David E. Rager, Northern Kentucky Sanitation District #1

Comment: Northern Kentucky Sanitation District #1 requests that the Kentucky Division of Water adopt the draft U.S. EPA primary contact recreation criteria and implementation and remove the fecal coliform criterion.

(b) Response: EPA has developed draft criteria for primary contact recreation, and is in the process of finalizing these criteria for national recommended water quality criteria. These draft primary contact recreation criteria are not yet final and recommended by USEPA to states and tribes for adoption. Once the criteria are final and recommended, the agency will review and consider adoption of these criteria at that time.

(21) Subject Matter: 401 KAR 10:031. Surface water standards Section 6. Pollutants
(a) Commenter(s): U.S. EPA
Comment: EPA states that there are no explicit statements for acceptable duration or frequency of numeric criteria (magnitude, frequency and duration). EPA suggests that the cabinet consider including these components in your standards to ensure technical defensibility, protection of designated uses and as an adequate basis for making regulatory decisions.
(b) Response: The cabinet addresses magnitude, frequency and duration in 401 KAR 10:031 Section 6. "Magnitude" is the concentration of those pollutants listed in 401 KAR 10:031 Section 6 Table 1; "frequency" is addressed by the criteria in Table 1, which are concentration values that are not to be exceeded; and "duration' is identified in 401 KAR 10:031 Section 6 Table 1 in the footnotes for toxic pollutants.

(22) Subject Matter: Acrolein and Phenol
(a) Commenter(s): U.S. EPA
Comment: EPA indicates that the cabinet is to be commended for adopting numeric criteria reflecting current National Recommended Water Quality Criteria for Acrolein and Phenol.
(b) Response: The cabinet acknowledges the comment.

(23) Subject Matter: Aluminum and total suspended solids criteria
(a) Commenter(s): U.S. EPA
Comment: EPA requests that the cabinet consider adoption of EPA's national recommended water quality criteria based on 304(a) aquatic life criterion. EPA is aware of the challenges involved in meeting the task of adopting these criteria due to the limitation of national guidance for parameters such as aluminum and total suspended solids. EPA is aware of many high quality waters in the US that contain more than the 87 µg/L total aluminum, when either total recoverable or dissolved is measured.
(b) Response: The cabinet has a narrative criterion for total suspended solids at 401 KAR 10:031 Section 4 that prohibits total suspended solids from causing change that adversely affect the indigenous aquatic community. The agency believes this criterion, along with the

criterion for settleable solids in 401 KAR 10:031 Section 4 protects aquatic life from adverse affects, as described in the referenced document in National Recommended Water Quality Criteria, "Quality Criteria for Water, 1986." The cabinet has not adopted the national recommended criteria for total recoverable aluminum given the naturally high aluminum concentrations in soils throughout the commonwealth. A review of aluminum data from the Division of Water's ambient monitoring network reveals that both the acute and chronic criteria for total recoverable aluminum are exceeded regularly. Many of those samples that exceed these criteria were collected in waterbodies where the biological community is healthy and reproducing. Some of the commonwealth's highest quality waterbodies often exceed the criteria. The adoption of USEPA criteria was therefore considered inappropriate for Kentucky.

(24) Subject Matter: Manganese
(a) Commenter(s): U.S. EPA
Comment: EPA requests that the cabinet consider adoption of EPA's national recommended water quality criteria for manganese for the protection of human health. This criterion was developed prior to 1980 methodology and did not utilize the fish ingestion BCF approach.
(b) Response: The cabinet is not aware of consumer complaints of manganese related to domestic use. The human health criterion (and the secondary maximum contaminant level) for manganese is to minimize domestic water use concerns that may arise from laundry staining. The acute U.S. EPA recommended criterion (100 µg/L) is to protect against possible health hazard by the accumulation of manganese in shellfish from marine environments, which are not present in Kentucky.

(25) Subject Matter: Polychlorinated biphenyls (PCBs)
(a) Commenter(s): USEPA
Comment: EPA requested that an apparent typographical error of the warm water aquatic habitat criterion of 0.0014 µg/L be corrected to 1.014 µg/L.
(b) Response: The cabinet acknowledges the error and that the National Recommended Water Quality Criterion for warm water aquatic habitat (chronic criterion) is published as 0.014 µg/L. The typographical error is corrected in Table 1 of 401 KAR 10:031(Amended After Comments) to read: "0.014".

(26) Subject Matter: Copper Aquatic Life Criteria
(a) Commenter(s): GEI Consultants

Comment: GEI Consultants requests that the cabinet adopt the current national recommended copper criteria based on the biotic ligand model.

(b) Response: The cabinet considered the copper criteria based on the biotic ligand model. Given that copper is the only metal currently recommended by U.S. EPA that utilizes the biotic ligand model the cabinet has determined that this approach is too onerous to implement. The procedures required, including the need for sufficient site-specific data to identify seasonal variation in the factors considered in the biotic ligand model preclude the cabinet from effectively implementing in a KPDES permit the copper criteria based on the biotic ligand model. The cabinet understands no state has fully adopted this water quality standard for copper statewide. The cabinet believes the current copper water quality standard is protective of aquatic life habitat. A permit applicant can pursue a variance from a water quality standard through the variance process in 401 KAR 10:031 Section 11.

(27) Subject Matter: Zinc Criteria

(a) Commenter(s): Wind Ward environmental, LLC

Comment: Wind Ward environmental, LLC recommends that the cabinet adopt aquatic life criteria for zinc based on the International Lead Zinc Research Organization research. These criteria account for other water chemistry variables that influence the toxicity of zinc to aquatic life incorporating the biotic ligand model.

(b) Response: The cabinet acknowledges the request. There is currently no nationally recommended water quality standard for zinc utilizing the biotic ligand model.

(28) Subject Matter: Kentucky's revision of 401 KAR 10:031 Section 8

(a) Commenter(s): Mr. C. Gregory Higdon, Kentucky Association of Manufacturers
Mr. Chad Harpole, Kentucky Chamber of Commerce

Comment: KAM and the Kentucky Chamber of Commerce objects to the use of the word "natural" as a consideration for OSRW qualities for potential inclusion in regulation. Further, Section 8(1)(b)2 provides that the location within a natural area could be designated whether the waterbody has exceptional water quality or not.

(b) Response: **"**Natural" is added in the language because of its meaning in context of those qualities that the agency thinks are pertinent when considering OSRWs. "Natural" is used in order to recognize there may be waterbodies that warrant OSRW designated use that may not indicate otherwise unless "natural" conditions are recognized. For instance, a watershed located in an uncommon local geologic region that in its natural (as opposed to resultant anthropogenic qualities) condition is of low buffering capacity and which has a resultant low pH, may have an aquatic community that is of low

numbers and diversity compared to the prevailing ambient conditions, yet be healthy, having excellent water quality located within a unique natural area of a region.

(29) Subject Matter: Automatic inclusion per 401 KAR 10:031 Section 8 of waterbodies within the boundary of state nature preserves

(a) Commenter(s): Don Dott, Kentucky State Nature Preserves Commission

Comment: The Kentucky State Nature Preserves requests reinstatement of language providing automatic inclusion of waterbodies within State Nature Preserve boundaries.

(b) Response: The decision to remove from automatic inclusion aquatic resources within the boundaries of State Nature Preserves is based on the need to ensure automatic inclusion as an OSRW is based on demonstrated water quality characteristics. 401 KAR 10:031 Section 8 (1)(b) provides the agency the authority to assure waterbodies designated as OSRWs, including those waterbodies within the boundaries of State Nature Preserves, have the qualities specified in Section 8(1)(b).

(30) Subject Matter: Automatic inclusion for waterbodies in dedicated nature preserves and those in published natural areas

(a) Commenter(s): Tom FitzGerald, Kentucky Resources Council

Comment: The Kentucky Resources Council requests the cabinet retain the criteria for automatic inclusion of both dedicated nature preserves and those waterbodies in published registry of natural areas per 400 KAR 2:080 and concurred upon by the cabinet. This language prevents the burden placed on third parties to nominate the waters at the cabinet's discretion.

(b) Response: The decision to remove from automatic inclusion aquatic resources within the boundaries of State Nature Preserves is based on the need to ensure automatic inclusion as an OSRW is based on demonstrated water quality characteristics. 401 KAR 10:031 Section 8 (1)(b) provides the agency the authority to assure waterbodies designated as OSRWs, including those waterbodies within the boundaries of State Nature Preserves, have the qualities specified in Section 8(1)(b).

(31) Subject Matter: Automatic inclusion for waterbodies in dedicated nature preserves and those in published natural areas

(a) Commenter(s): Mr. Chad Harpole, Kentucky Chamber of Commerce

Comment: The Kentucky Chamber of Commerce supports the decision to remove from automatic inclusion as OSRWs those waterbodies that are in state nature preserves and published in the registry of natural areas per 400 KAR 2:080.

(b) Response: The cabinet acknowledges the comment.

(32) Subject Matter: Dissolved oxygen standard for the Ohio River

(a) Commenter(s): Mr. Chad Harpole, Kentucky Chamber of Commerce

Comment: The Kentucky Chamber of Commerce supports the clarification in 401 KAR 10:031 Section (9)(a) that dissolved oxygen standard is applied instream. Request "after mixing" be inserted in the criterion implementation, too. Otherwise one might argue the criterion must apply instream within immediate proximity to the discharge.

(b) Response: The dissolved oxygen standard is to be met in-stream at the point of discharge unless a mixing zone is granted in the KPDES permit.

V. Summary of Statement of Consideration and Action Taken by Promulgating Administrative Body

The public hearing on 401 KAR 10:031 was convened; several members of the public attended this public hearing, and one individual provided verbal comments. Written comments were also received regarding these administrative regulations. The cabinet proposes the following amendments in response to public comments:

401 KAR 10:031

Page 2
Section 1
Line 5

After "a level that results in", insert "a".
After "eutrophication", insert "problem".

Page 2
Section 1
Line 4

After "eutrophication", insert "problem".

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Table 1

For "Polychlorinated Biphenyls (PCBs)", in the "Warm Water Aquatic Habitat" Column for "Chronic", insert "0.014".
Delete "0.0014".